The measuring adapter 4 can be integrated directly into a rubber seal 34 which surrounds said adapter for example in a shell-like manner on the circumference or is an applied coating with a sealing effect so that additional application of a seal is not required (Fig. 12).

In the claims:

Please amend claims 1-39 as follows:

1. (Amended) Method for the quantitative gas analysis in which the gas analysis of a sample atmosphere is implemented by means of a sensor device, a diffusion seal being produced between the sample atmosphere contained in a sample system and a measuring chamber via a measuring adapter, at least one radiation source and at least one detector device being orientated on the measuring chamber in such a manner that the measuring radiation emitted from at least one radiation source proceeds at least once through the measuring chamber and is detected by at least one detector device after leaving the measuring chamber, characterised in that a sensor head is used which can be coupled to the measuring adapter and in which at least one radiation source and/or at least one detector device are disposed.

2. (Amended) Method according to claim 1, further comprising the step of heating the measuring adapter.

3. (Amended) Method according to claim 1 wherein the measuring adapter is used only once in order to avoid cross-contaminations.

4. (Amended) Device for the quantitative gas analysis of a sample atmosphere, which is contained in a sample system, with a measuring adapter, which contains a measuring chamber, a diffusion pipe, a cannula or at least one opening in the measuring chamber wall as diffusion seal for the diffusion of the sample atmosphere into the measuring chamber, a radiation source and a detector device, the measuring chamber being delimited by a t least one cover, which is

permeable for a measuring radiation of the radiation source, and the radiation source and the detector device being disposed on the measuring chamber in such a manner that the measuring radiation emitted from the radiation source is detected by the detector device after passing at least once through the measuring chamber, characterised in that the radiation source and/or the detector device are disposed in a sensor head which can be coupled to the measuring adapter.

5. (Amended) Device according to claim 4, wherein the measuring chamber is contained in the measuring adapter.

6. (Amended) Device according to one of the claims 4 wherein the radiation source is contained in the measuring adapter.

7. (Amended) Device according to claim 4 wherein the measuring adapter is configured as a stopper.

8. (Amended) Device according to claim 4 wherein the measuring adapter has a flanged connection.

9. (Amended) Device according to claim 4 wherein the measuring adapter has a screw thread.

10. (Amended) Device according to claim 4 wherein the measuring adapter has a snap-on device.

11. (Amended) Device according to claim 4 wherein the measuring adapter contains a diffusion pipe as diffusion seal.

12. (Amended) Device according to claim 4 wherein the measuring adapter contains a cannula as diffusion seal.

13. (Amended) Device according to claim 4 wherein the measuring adapter contains at least one opening as diffusion seal.

14. (Amended) Device according to claim 4 wherein the measuring chamber is delimited on one side by the cover and on the other side by a measuring chamber wall, which reflects the measuring radiation, so that the measuring radiation emitted from the radiation source is reflected towards the detector device after passing through the measuring chamber.

15. (Amended) Device according to claim 14, wherein the reflecting measuring chamber wall has at least one opening as diffusion seal for the diffusion of the sample atmosphere out of the sample system into the measuring chamber.

16. (Amended) Device according to claim 14 wherein the measuring chamber opens towards the coupled-on sensor head in a funnel-or pyramid-shape in order to reflect the measuring radiation on the measuring chamber walls.

17. (Amended) Device according to claim 14 wherein the reflecting measuring chamber wall is a reflection plate, which is parallel to the cover and has openings as diffusion seal.

18. (Amended) Device according to claim 4 wherein the measuring chamber has the first cover between radiation source and measuring chamber and the second cover between measuring chamber and detector device.

19. (Amended) Device according to claim 18, wherein the first cover and the second cover are disposed on the measuring chamber situated approximately opposite each other.

20. (Amended) Device according to claim 4 wherein the measuring chamber is disposed between the radiation source and the detector device.

21. (Amended) Device according to claim 4 wherein the device has optical elements such as mirrors or light guides for introducing the measuring radiation into the measuring chamber.

22. (Amended) Device according to claim 4 wherein the device has optical elements such as mirrors or light guides for directing the measuring radiation, which emanates from the measuring chamber, onto the detector device.

23. (Amended) Device according to claim 4 wherein in that the sensor device has at least two radiation source.

24. (Amended) Device according to claim 4 wherein the sensor device has at least two detector devices.

25. (Amended) Device according to claim 4 wherein a coupling device is provided for a coupling of the sensor head to the measuring adapter.

26. (Amended) Device according to claim 25, wherein the sensor head has a coupling device.

27. (Amended) Device according to claim 4 wherein a broad-band thermal radiator, LEDs (light-emitting diodes), diode lasers, infrared radiators or UV light radiators are provided as radiation source.

28. (Amended) Device according to claim 4 wherein the radiation-permeable cover is formed from lime-soda-glass, boron silicate glass, quartz glass, silicon or sapphire, calcium fluoride (CaF_2), barium fluoride (BaF_2), germanium (Ge) or zinc selenide (SnSe).

29. (Amended) Measuring system comprising a device according to claim 4 and a sample system which contains a sample atmosphere, wherein the measuring adapter has a universal joint for different sample systems.

30. (Amended) Measuring system according to claim 28, wherein the measuring adapter can be coupled to a pipe as sample system.

31. (Amended) Measuring system according to claim 29, wherein the measuring adapter can be coupled to a sample bottle as sample system.

32. (Amended) Measuring system according to claim 31, wherein the measuring adapter is formed as a stopper for a sample bottle which is present as sample system and which stopper can be inserted in particular into a bottle neck of the sample bottle.

33. (Amended) Measuring system according to claim 29 wherein the measuring adapter has a flanged connection.

34. (Amended) Measuring system according to claim 29 wherein the measuring adapter has a screw thread.

35. (Amended) Measuring system according to claim 29 wherein the measuring adapter has a snap-on device.

36. (Amended) Measuring system according to claim 29 wherein the measuring adapter contains a diffusion pipe as diffusion seal.

37. (Amended) Measuring system according to claim 29 wherein the measuring adapter contains at least one opening as diffusion seal.

38. (Amended) Measuring system according to claim 29 wherein the measuring adapter contains a cannula as diffusion seal.

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39. (Amended) Measuring system according to claim 38, wherein the sample system is sealed with an elastomer seal and the measuring adapter contains a cannula for penetrating the seal as diffusion seal.